I CLAIM:

1. A process for depositing a non-single crystalline SiGe-containing material onto a surface, comprising

providing a chemical vapor deposition chamber having disposed therein a substrate,

introducing a gas comprised of a higher-order silane and a germanium precursor to the chamber; and

depositing a non-single crystalline SiGe-containing film onto the substrate.

2. The process as claimed in Claim 1, wherein the higher-order silane is selected from the group consisting of disilane, trisilane, and tetrasilane.

3. The process as claimed in Claim 1, wherein the germanium precursor is selected from the group consisting of germane, digermane, trigermane and tetragermane.

4. The process as claimed in Claim 1, wherein the higher-order silane is trisilane and the germanium precursor is germane.

5. The process as claimed in Claim 1, wherein the non-single crystalline SiGe-containing film is polycrystalline and the depositing is carried out at a temperature in the range of about 550°C to about 700°C.

6. The process as claimed in Claim 1, wherein the non-single crystalline SiGe-containing film is amorphous and the depositing is carried out at a temperature in the range of about 450°C to about 600°C.

7. The process as claimed in Claim 1, wherein the depositing is carried out at a rate of about 50 Å per minute or higher.

8. The process as claimed in Claim 1, wherein the depositing is carried out at a rate of about 100 Å per minute or higher.

9. The process as claimed in Claim 1, wherein the gas further comprises one or more compounds selected from the group consisting of monosilylmethane, disilylmethane, trisilylmethane, tetrasilylmethane, and a dopant precursor.

10. The process as claimed in Claim 1, wherein the chemical vapor deposition chamber is a single-wafer, horizontal gas flow reactor.

11. The process as claimed in Claim 1, wherein the SiGe-containing film has a thickness non-uniformity of about 10% or less.

12. The process as claimed in Claim 1, wherein the SiGe-containing film has greater uniformity than a comparable film made using silane in place of the higher-order silane.

13. The process as claimed in Claim 1, further comprising patterning the SiGe-containing film to form a transistor gate electrode.

14. The process as claimed in Claim 1, wherein the surface is formed by a dielectric film.

15. The process as claimed in Claim 14, wherein the surface is formed by a silicon oxide film.

16. A SiGe film in an integrated circuit, the SiGe film having a thickness non-uniformity of about 10% or less.

17. The SiGe film as claimed in Claim 16, wherein the SiGe film is contained in a transistor gate electrode.

18. The SiGe film as claimed in Claim 17, wherein the film directly overlies a dielectric.

19. The SiGe film as claimed in Claim 16, the SiGe film having a thickness non-uniformity of about 5% or less.

20. A process for making a graded SiGe-containing film, comprising:

providing a substrate disposed within a CVD chamber, and

depositing a graded SiGe-containing film onto the substrate by thermal CVD using a deposition gas comprising amounts of trisilane and a germanium precursor that are varied during deposition.

21. The process of Claim 20, wherein the amounts are varied to produce a germanium concentration that is a substantially linear function of the amount of germanium precursor.

22. The process of Claim 20, wherein the germanium precursor is selected from the group consisting of germane and digermane.

23. The process of Claim 22, wherein the graded SiGe-containing film is deposited at a deposition rate that is a substantially linear function of the amount of germanium precursor.

24. The process of Claim 22, wherein the deposition gas further comprises an amount of silane.

25. The process of Claim 24, wherein the amount of silane is varied during deposition.

26. The process of Claim 24, wherein a weight ratio of trisilane to silane in the deposition gas is about 1:1 or greater.

27. The process of Claim 24, wherein the weight ratio of trisilane to silane in the deposition gas is about 4:1 or greater.

28. The process of Claim 20, wherein the SiGe-containing film is epitaxial.

29. The process of Claim 20, wherein the SiGe-containing film comprises carbon.

30. The process of Claim 20, wherein the SiGe-containing film is polycrystalline.

31. The process of Claim 20, wherein the SiGe-containing film is amorphous.

32. The process of Claim 30, wherein the SiGe-containing film is formed directly over a dielectric.

33. The process of Claim 32, wherein the dielectric comprises silicon oxide.